THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

POLICE VILLAGE OF SCHOMBERG

TOWNSHIP OF KING

1970

Report

on a

Water Pollution Survey

of the

Police Village of Schomberg

TOWNSHIP OF KING

County of York

May 1970

DISTRICT ENGINEERS BRANCH

DIVISION OF SANITARY ENGINEERING

INDEX

R E P O R T

THE ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was made in the Police Village of Schomberg in May 1970. The purpose of the survey was to locate and record all significant sources of water pollution within the Schomberg area and to make recommendations on the most feasible method of correcting them.

I GENERAL

(1) Population

The Police Village of Schomberg is located in the Township of King in the County of York. The population of the village was assessed in 1969 to be 637 according to the 1970 municipal directory.

(2) Municipal Water System

Schomberg residents obtain water from a new 150 IGPM drilled well. The raw water is very hard and has a high iron concentration. Water treatment consists of softening and chlorination and the resulting water quality is chemically and bacteriologically within OWRC objectives. The average per capita consumption is approximately 53 gallons per day based on 1969 pumpage data.

(3) Sanitary Waste Disposal

Sanitary wastes are disposed of by means of private individual septic tank and subsurface non-effluent producing tile bed systems. Storm water drainage is provided by open ditches

or storm sewers which eventually discharge to the Schomberg River or its tributaries.

II WATERSHED DRAINAGE

Drainage for Schomberg is provided by the Schomberg branch of the Holland River and its tributaries. The soils in Schomberg have been formed from lacustrine deposits, (lake deposits) and stratified by layers of calcareous silts (containing carbonate of lime or limestone) and clay. The topography is moderately smooth sloping and the soil is susceptible to sheet erosion. It should be noted that the flow in the Schomberg River at Schomberg is minimal.

III PROPOSED SUBDIVISION DEVELOPMENT

A proposed plan of subdivision (T-20541) consisting of 63 lots is planned by the owner Mr.R.K. Beattie on Lot 34, Concession 9.

The OWRC is reluctant to have this development occur because of the inadequate size of the lots to sustain septic tank systems as proposed in the plan.

Since the Schomberg River is not able to accommodate the effluent from a sewage treatment plant, development on septic tank and tile field installations should only be approved after it has been proven by the developer that optimum soil conditions exist for such installations.

IV SAMPLE RESULTS, OBSERVATIONS AND DISCUSSION

The laboratory results of the bacteriological examinations and the chemical analyses of samples collected from the watercourses and outfalls, are included in the tables appended to this report.

Generally, the water samples collected from the Schomberg River and its tributaries revealed high total coliform counts. These high counts indicate possible malfunctioning of private sewage disposal systems.

Bacteriological and chemical samples collected from two storm sewer outfalls at HOS-21.1-W and HOS-21.0-W indicated the presence of domestic sewage, likely via connections from septic tank systems.

The presence of farm animals near watercourses, was also noted at the time of the survey. Body wastes from these animals can cause high coliform counts if they gain access to the water.

Upstream from Schomberg, total and fecal coliform densities in watercourse samples (e.g. HOS-22.3, HOS-21.5, HOS-21.46, HOS-21.42 and HOS-21.35) were not excessively high. Downstream from Schomberg, however, the counts had increased by roughly a factor of four, while in Schomberg near the storm sewer outfalls an extremely high count was noted, (e.g. HOS-21.0-W and HOS-21.1-W).

The storm sewer system on Main Street appears to be the prime source of objectionable discharge to the river. Considering the age of the buildings in this area and the small lots on which they are situated, it seems likely that there are some malfunctioning disposal systems in this area. The effluents from these systems are entering the storm sewers. Refurbishing of all malfunctioning septic tank and tile field systems in the area and in particular those on Main Street would result in a significant improvement in surface water quality in Schomberg.

V SUMMARY

A water pollution survey of the Police Village of Schomberg revealed that although there are sources of contamination, the pollution of surface waters in the community does not appear to be severe. The main problem area is the commercial section of Main Street where a number of sewage disposal systems drain to storm sewers. Malfunctioning septic tank systems should be repaired on an individual basis.

VI RECOMMENDATIONS

(a) Malfunctioning septic tank and tile field systems in the Schomberg area should be located and corrected.

(b) Since the Schomberg River is not able to accommodate the effluent from a sewage treatment plant, development on septic tank and tile field installations should only be approved after it has been proven by the developer that optimum soil conditions exist for such installations.

/elc

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APPENDICES

GLOSSARY OF TERMS

Bacteriological Examinations - The Membrane Filter technique is used to obtain a direct enumeration of coliform organisms. These organisms are the normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large number in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as MF coliform count per 100 millilitres.

Biochemical Oxygen Demand (BOD) - The BOD test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in the sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are 5 days and 20°C respectively.

Solids - The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature, whereas the dissolved solids are a measure of those solids in solution.

Alkyl Benzene Sulfonate (ABS) - The alkyl benzene sulfonate portion of the anionic detergents is reported in ppm. The test is generally employed to detect the presence of domestic wastes. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in domestic waste discharges.

As an objective, the ABS concentration should not exceed 0.5 ppm in water used for domestic purposes.

Phosphorus

Total Phosphorus - Total Phosphorus is a measure of both the organic and inorganic forms of phosphorus present.

Soluble Phosphorus - Soluble Phosphorus is a measure of the orthophosphate only and when subtracted from the total phosphorus gives an indication of the concentration of organic phosphorus present. That is, the soluble phosphorus is a measure of the inorganic phosphorus present except the phosphorus in the form of polyphosphate, which however, in surface waters is usually insignificant. Inorganic phosphorus in concentration in excess of 0.01 ppm may cause nuisance conditions.

TOWNSHIP OF KING

POLICE VILLAGE OF SCHOMBERG

TABLE I

SAMPLING POINT NUMBER	DESCRIPTION	DATE	5-DAY BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	ANIONIC DETERGENTS AS ABS	PHOSPHORUS AS P Tot.	PHOSPHORUS AS P Sol.	M.F. COLIFORMS PER 100 ml Total	M.F. COLIFORMS PER 100 ml Fecal
HOS-20.58	East of Junction of Rivers	May 27	2.0	420	10	410	---	---	---	91,000	840
HOS-20.59	West of Junction of Rivers	May 27	1.0	490	10	420	---	---	---	1,500	810
HOS-20.6	Schombert River & Highway #9	May 27	1.6	390	10	380	---	---	---	36,000	890
		June 23	2.5	360	5	355	---	.17	.067	59,000	4,100
HOS-20.75	South Highway #9 at Schomberg River	June 23	1.8	470	5	465	0	.16	.082	13,000	1,200
HOS-20.9	2nd entrance to Fair Grounds North of King Street	June 23	2.5	400	10	390	.1	.20	.088	36,000	3,900
HOS-20.95	South of Entrance to Fair Grounds	June 23	4.0	420	10	410	.1	.36	.12	21,000	2,300
HOS-20.95 -W	24" CIP Outfall to East Bank	May 27	0.4	530	5	525	.1	---	---	4,500	2,000

TABLE I (cont'd)

SAMPLING POINT NUMBER	DESCRIPTION	DATE	5-DAY BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	ANIONIC DETERGENTS AS ABS	PHOSPHORUS AS P Tot.	PHOSPHORUS AS P Sol.	M.F. COLIFORMS PER 100 ml Total	M.F. COLIFORMS PER 100 ml Fecal
HOS-21.0	1st Entrance to Fair Grounds North of King St.	May 27	2.6	390	10	380	.1	---	---	12,500	2,800
		June 23	3.0	400	5	395	.1	.19	.11	24,000	1,400
HOS-21.0 -W	15" CIP Outfall 1st Engrance to Fair Grounds North of King Street	June 23	60	980	50	930	--	4	2	107×10^6	13×10^6
HOS-21.05	Junction of Stream joining Schomberg River	May 27	4.5	770	60	710	0.5	---	---	200,000	5,600
		June 23	6.0	580	110	470	0.6	5.4	2.0	360,000	20,000
HOS-21. 1-W	18" CIP Outfall under 1s Bridge North of King Street	May 27	120	1530	60	1470	8.8	5.5	5.4	40×10^6	2.1×10^6
HOS-21.3	Schomberg River 100' below Junction with Creek	May 27	1.4	300	15	285	.1	---	---	2,800	364
HOS-21.35 -W	12" CIP Outfall 1st Bridge South of King Street, East Side	NO FLOW									
HOS-21.35	1st Bridge South of King Street	May 27	1.2	380	15	365	---	---	---	6,700	680
		June 23	4	250	5	245	.1	.11	.025	2,500	950

TABLE I (cont'd)

SAMPLING POINT NUMBER	DESCRIPTION	DATE	5-DAY BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	ANIONIC DETERGENTS AS ABS	PHOSPHORUS AS P Tot.	PHOSPHORUS AS P Sol.	M.F. COLIFORMS PER 100 ml Total	M.F. COLIFORMS PER 100 ml Fecal
HOSE-21.4	East Creek at Road to Highway #27	May 27	1.8	370	10	360	---	---	---	3,800	1,200
		June 23	1.4	380	5	375	---	---	---	2,700	730
HOS-21.42	At Fence Across Creek West of 1st Bridge South of King Street	June 23	1.6	320	10	310	---	---	---	2,800	810
HOS-21.46	Upstream from Mill at Fence	May 27	1.4	350	15	335	---	---	---	1,900	70
HOS-21.5	Downstream from Mill at 2 Logs Across Creek	May 27	1.6	350	15	335	---	---	---	1,000	170
HOSE-21.5	At 2nd Bridge South of King Street	June 23	1.4	360	5	355	---	---	---	260	96
HOSE-21.5-W	10" Glazed Tile Outfall at 2nd Bridge South of King Street	NO FLOW									
HOSE-21.6	Upstream East Tributory	May 27	1.4	480	.5	465	---	---	---	4,300	1,300
HOS-22.3	Bridge on King Street Near Lloydstown	May 27	1.6	510	150	360	---	---	---	1,400	800

TABLE II

SAMPLING POINT NUMBER	DESCRIPTION	DATE	5-DAY BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	ANIONIC DETERGENTS AS ABS	PHOSPHORUS AS P Tot.	PHOSPHORUS AS P Sol.	M.F. COLIFORMS PER 100 ml Total	M.F. COLIFORMS PER 100 ml Fecal
DS-1	Swamp behind C.I. Bank of Commerce	May 27	146	12,830	12,490	340	---	---	---	27,000	5,000
DS-2	Swamp behind Post Office	May 27	1.6	670	15	655	---	---	---	8,200	180
DS-3	King Street & Driveway to Mill	May 27	80	680	330	350	---	---	---	52,000	2,800

SCHOMBERG

TWP. OF TECUMSETH

SCHOMBERG RIVER

HOS 20.59

HOS 20.58

HWY. Nº 9

HOS 20·6

TWP OF KING

HOS 20·75

SCHOMBERG RIVER

HOS 20·9

HOS 20·95

HOS 20·95 W

FAIR GROUNDS

HOS 21·0

HOS 21·0 W

HOS 21·05

HOS 21·1 W

DS – 2

DS – 1

HWY Nº 27

ELMWOOD AVE.

WESTERN AVE.

CASTLEWOOD AVE.

KING STREET

HOS 21·3

MAIN STREET

RICE DRIVE

HOSE 21·4

COOPER DR.

HOS 21·42

SCHOMBERG RIVER

HOS 21·35

HOS 21·35 W

DS – 3

MILL

HOS 21·46

MAIN STREET

MAPLE DR.

TARA AVE.

TO LLOYDTOWN

HOS 21·5

HOSE 21·5 W

HOSE 21·5

SCHOMBERG RIVER EAST

HOSE 21·6

LEGEND

HOS 21·5 – SAMPLING POINT SHOWING STREAM AND MILEAGE.

HOS 21·5 W – STREAM AND MILEAGE AT OUTFALL.
– TYPE OF OUTFALL.
W – STORM SEWER

D – 1 – DITCH SAMPLING POINT

——— – SANITARY SEWER

ONTARIO WATER RESOURCES COMMISSION

POLICE VILLAGE OF SCHOMBERG
TOWNSHIP OF KING
WATER POLLUTION SURVEY
1970

SCALE: 1" = 200'	
DRAWN BY: R.D.L.	DATE: OCTOBER 1970
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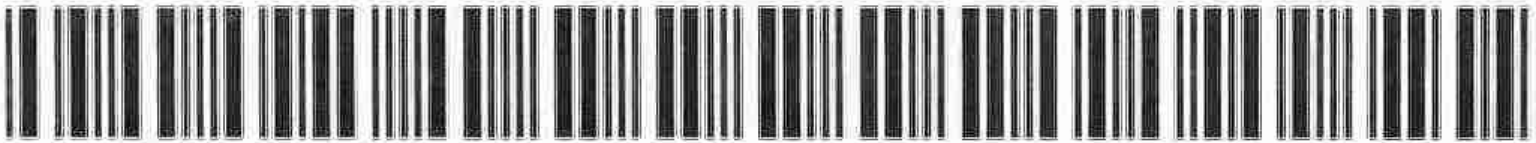
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